

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA

STATE OF OKLAHOMA, ex rel,)	
W.A. DREW EDMONDSON, in his)	
capacity as ATTORNEY GENERAL)	
OF THE STATE OF OKLAHOMA,)	
et al.)	
)	
Plaintiffs,)	
)	
vs.)	No. 05-CV-329-GKF-PJC
)	
TYSON FOODS, INC., et al.,)	
)	
Defendants.)	

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TRANSCRIPT OF NONJURY TRIAL PROCEEDINGS
JANUARY 13, 2010
BEFORE GREGORY K. FRIZZELL, U.S. DISTRICT JUDGE

REPORTED BY: BRIAN P. NEIL, CSR-RPR, RMR, CRR
United States Court Reporter

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1 Wednesday, January 13, 2010

2 * * * * *

3 THE COURT: Ms. Xidis.

4 MS. XIDIS: Thank you, Your Honor.

5 **CONTINUED CROSS-EXAMINATION**

6 **BY MS. XIDIS:**

7 Q. Okay. Doctor, before our lunch break, we
8 were talking about the comparison of some ICR data to
9 data from the IRW.

10 And, Doctor, in your comparison of the IRW
11 and ICR/TOC data, you did not do any analysis to
12 determine whether the levels of TOC in the IRW were
13 similar to those in other areas in the U.S. with
14 concentrated poultry production, did you?

15 A. No, I did not.

16 Q. Okay. And in your comparison of DBP levels
17 in IRW utilities with other Oklahoma utilities, you
18 also did not do any analysis to determine whether
19 poultry waste is applied in any other watersheds in
20 Oklahoma, have you?

21 A. No.

22 Q. Okay. And, in fact, you don't know whether
23 poultry waste is, in fact, applied in any of the other
24 watersheds in Oklahoma; is that correct?

25 A. No.

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1 Q. Okay. If you could please get out the folder
2 that we -- that is labeled SOK5212. This is one of
3 the exhibits you discussed with Mr. Jorgensen.

4 A. I'm afraid I've scrambled things up. Which
5 one is it, please?

6 Q. It's T-1 from Dr. Teaf's report.

7 A. Oh, yes. I have it.

8 Q. Okay. Doctor, I'd like you to take a careful
9 look at this table, and it doesn't say the word
10 "violation" anywhere on it, does it?

11 A. I don't see "violation" on the table.

12 Q. Okay. And on the third line of the title, it
13 says the word "exceedances"; is that correct?

14 A. Correct.

15 Q. Okay. And you were here for Dr. Teaf's
16 testimony?

17 A. Yes.

18 Q. Okay. And during Dr. Teaf's testimony,
19 didn't he explain the difference between exceedances
20 and violations of the MCL for DBPs?

21 A. He explained that in his testimony, but in
22 his expert report it was clear that he was trying to
23 essentially say that an exceedance was a violation.

24 Q. Okay. But do you agree with me in his
25 testimony in this court that he made a clear

1 differentiation between exceedances and violations?

2 A. I think based on the sum total of his
3 testimony, that's what he understands now, yes, and
4 that's what he told the court.

5 Q. Okay. Thank you. If you could now please
6 look for table T-3, which was in a folder labeled
7 SOK5214.

8 A. What does that look like, please? Sorry.

9 Q. That's all right. Can you see, it's got
10 the --

11 A. Right. Got it.

12 Q. Okay. Doctor, you agree that
13 trihalomethane-forming potential is a useful tool for
14 water-treatment plants in assessing the condition of
15 their water supplies; correct?

16 A. If it's applied properly, yes.

17 Q. Okay. And given the condition of the water
18 supply in the IRW and the manner in which these
19 utilities are treating their water, there is a
20 potential for THMs to be formed; correct?

21 A. For some THMs to be formed?

22 Q. Yes.

23 A. Yes.

24 Q. And, in fact, at least some of these 18
25 utilities you've looked at THMs are, in fact, being

1 formed; correct?

2 A. THMs are formed, yes.

3 Q. And in your opinion as a water-treatment
4 professional, that is not a good thing; right?

5 A. That has -- I've never said that.

6 Q. That THMs are being formed, that's a good
7 thing, in your opinion?

8 A. Trihalomethanes are formed as a direct result
9 of disinfecting the water so that we do not have
10 outbreaks of typhoid and cholera. It is an
11 unavoidable consequence of the addition of
12 disinfectant. And so therefore, it is something that
13 we have had to live with both as a -- as environmental
14 engineers as a society. That was the whole reason for
15 the stage I and the stage II DBP rules to balance the
16 risks associated with microbial contamination with the
17 risks associated with chemical disinfection
18 byproducts.

19 Q. Okay. But I believe you testified earlier
20 that you thought that nine to ten percent of
21 violations in those -- I'm sorry -- nine to ten
22 percent of samples being violations of the MCL was not
23 acceptable to you; is that correct?

24 A. That's correct. I said I always strive for a
25 hundred percent compliance.

1 Q. Okay. Thank you, Doctor. Let's turn our
2 attention to cyanotoxins.

3 Doctor, it is not your opinion that all
4 cyanotoxins produced by all cyanobacteria are always,
5 in fact, removed in conventional water treatment;
6 correct?

7 A. That's correct.

8 Q. Okay. It would depend on plant design?

9 A. It would depend upon a lot of things,
10 including the type of oxidant that's being used,
11 whether, you know, activated carbon was being used,
12 and on the particular cyanotoxin itself.

13 Q. Okay. And, Doctor, you don't know whether
14 the water utilities in the IRW have, in fact, been
15 designed in a manner that would remove all the
16 cyanotoxins produced in the blue-green algae in Lake
17 Tenkiller; correct?

18 A. All I know is that there are two positive
19 samples from microcystin-LR. There's been no evidence
20 presented on any other cyanotoxin. So I have believe
21 that unless I'm presented with data, that those other
22 cyanotoxins do not exist, and so therefore, they do
23 not have to remove them.

24 MS. XIDIS: Okay. I move to strike that
25 as nonresponsive.

1 THE COURT: Any response?

2 MR. JORGENSEN: It was directly
3 responsive.

4 THE COURT: I don't believe so. The
5 answer is stricken. The question was, you don't know
6 whether the water utilities in the IRW have, in fact,
7 been designed in a manner that would remove all of the
8 cyanotoxins produced -- well, it says in the
9 blue-green algae in --

10 MS. XIDIS: I think it's "by," I think,
11 Your Honor.

12 THE COURT: -- by the blue-green algae
13 in Lake Tenkiller, Doctor. Well, it's the same
14 question.

15 Go ahead.

16 A. I'm sorry. I'm having trouble --

17 Q. (BY MR. XIDIS) I'd be happy to repeat the
18 question.

19 You don't know whether the water utilities in
20 the IRW have, in fact, been designed in a manner that
21 would remove all the cyanotoxins produced by
22 blue-green algae in Lake Tenkiller; correct?

23 A. Could I ask a clarifying question?

24 Q. Just try TO answer the best you can. I think
25 it's a yes or no question, sir.

1 A. I don't know.

2 Q. Okay. And, Doctor, someone other than
3 yourself actually drafted some of the cyanotoxin
4 portion of your report; isn't that correct?

5 A. Yes. I work with two staff members under my
6 direct supervision.

7 Q. Okay. And your opinions in this case are
8 limited to cyanotoxins in drinking water, correct, and
9 not to recreational uses?

10 A. That's correct.

11 MS. XIDIS: Okay. No further questions
12 for the witness, Your Honor.

13 But I do have one housekeeping matter, which
14 was Exhibit 5202, which I believe Mr. Jorgensen
15 represented was admitted in the record. And we've
16 checked our lists and don't show it as admitted but
17 we're happy to have it admitted and have no objection
18 to doing so.

19 THE COURT: All right.

20 MR. JORGENSEN: I believe my records
21 show that it is, but let's just clarify that by, we
22 move to admit it.

23 THE COURT: That's easily done. 5202 is
24 admitted without objection, if it has not been
25 already.

1 All right. Mr. Jorgensen.

2 MR. JORGENSEN: Yes, Your Honor.

3 **REDIRECT EXAMINATION**

4 **BY MR. JORGENSEN:**

5 Q. Dr. McGuire, let's start where Ms. Xidis left
6 off.

7 Did you testify that you had seen the data
8 that the state has gathered about what cyanotoxins
9 were detected in Lake Tenkiller?

10 A. I have seen the data, yes.

11 Q. Okay. And what was detected?

12 A. Two positive samples for microcystin-LR.

13 Q. Is that what is known about the presence of
14 cyanotoxins in the water?

15 A. Yes.

16 Q. And did you not -- well, I won't ask it that
17 way.

18 Did you familiarize yourself with the
19 treatment processes at the plants in the Illinois
20 River Watershed?

21 A. Yes.

22 Q. And are the treatment procedures that are
23 used at the plants in the Illinois River Watershed
24 sufficient to remove the cyanotoxins that you just
25 talked about, those that are known to exist?

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1 A. Yes, they are.

2 Q. All right. Let's talk for a minute about the
3 information collection rule -- sorry, we did all these
4 with the previous court reporter -- the information
5 collection rule.

6 I believe you were asked some questions about
7 whether you removed some data from the TOC values
8 reported by the 18 facilities. Do you recall those
9 questions?

10 A. Yes.

11 Q. To what extent was your removal of those data
12 points part of a standard statistical technique to
13 exclude outliers?

14 A. That's what a -- anybody who's analyzing data
15 has to do. There are -- we call outliers, but in this
16 particular case it's clear to me that they're
17 mistakes. They are some kind of analytical mistake or
18 transcription mistake.

19 So therefore, I felt fully justified, based
20 upon all of my years of experience, of excluding those
21 TOC data that didn't make any sense. Some of them
22 were 30 and 40 milligrams per liter and there was no
23 data to support that those levels have ever been found
24 in the IRW.

25 Q. And did you testify that they tended to be

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1 grouped in a particular way or from a particular
2 location?

3 A. Yes.

4 Q. And will you remind me what that testimony
5 was?

6 A. They seemed to be in the LRED water utility
7 data sets.

8 Q. Can I ask you -- and I realize you've got a
9 stack of paper up there -- to dig out Defendants'
10 Joint Exhibit 6057, which is one that Ms. Xidis gave
11 you?

12 MR. JORGENSEN: And, Your Honor, may I
13 approach to show him what it looks like?

14 THE COURT: You may.

15 MR. JORGENSEN: Yeah, it's that one.

16 Q. (BY MR. JORGENSEN) Doctor, based on your 35
17 years of experience looking at total organic carbon
18 values around the country, are these values for the
19 IRW particularly high? Particularly low? How do they
20 strike you?

21 A. They strike me as particularly low. They're
22 certainly lower than the average we've seen around the
23 country.

24 Q. Okay. Let me switch gears and ask you -- I
25 believe you were asked some questions about the

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1 information collection rule and whether that presented
2 you with a very large set of data samples.

3 Do you recall those questions as to total
4 organic carbon and what was the size of the
5 information collection rule? Do you recall those
6 questions from Ms. Xidis?

7 A. I do.

8 Q. Is the fact that the information collection
9 rule data gathered by EPA is large and robust does
10 that make your comparison more reliable or less
11 reliable?

12 A. Anyone doing data analysis, as in this case,
13 always wants more data. And so these large data sets
14 are ideal for making these comparisons.

15 Q. All right. If I can turn your attention now,
16 Dr. McGuire, to another exhibit that Ms. Xidis handed
17 you. This is Defendants' Joint Exhibit 6042. I see
18 that you have it. I want to clarify because I think
19 that there are some things said in the record that may
20 not be right.

21 Did you do a study as to whether any of these
22 are actual sources of phosphorus to the waters of the
23 Illinois River Watershed or are you just listing them
24 as potential sources?

25 A. I just listed them as potential sources.

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1 Q. Are you testifying today that any of these
2 sources follow the fate and transport mechanisms that
3 would be necessary to get phosphorus to the water?

4 A. I'm not testifying to that.

5 Q. Okay. I just wanted to clarify that.

6 Let me turn your attention to another exhibit
7 that Ms. Xidis handed you. I believe this is 6061.
8 Do you have that one?

9 MR. JORGENSEN: May I approach, Your
10 Honor?

11 THE COURT: You may.

12 MR. JORGENSEN: Yeah, that's it.

13 Q. (BY MR. JORGENSEN) Doctor, this is a
14 chart -- your chart of the 18 drinking water utilities
15 in the IRW, and I just want the record to be very
16 clear.

17 Of the six that have had issues, six of the
18 eighteen, had any of them already fixed their
19 problems?

20 A. Yes.

21 Q. How many?

22 A. Three.

23 Q. Of the three that continue to have problems,
24 is it an issue of poor water quality coming into their
25 intakes or an issue of them moving their point of

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1 chlorination?

2 MS. XIDIS: Objection, Your Honor. This
3 has been asked and answered.

4 THE COURT: Sustained. It's clear. I
5 think he's clearly answered that.

6 MR. JORGENSEN: That's all I wanted,
7 Your Honor, was for it to be clear. So with that, I'm
8 done. Thank you.

9 THE COURT: Very well. Recross?

10 MS. XIDIS: No further questions, Your
11 Honor.

12 THE COURT: Very well. You may step
13 down.

14 The defendants may call their next witness.

15 MR. GREEN: Your Honor, it gives me
16 pleasure to call the very last witness on behalf of
17 the defendants in this case, Dr. Herman Gibb.

18 **HERMAN J. GIBB, PH.D.,**
19 ***after having been first duly sworn, says in reply to***
20 ***the questions propounded as follows, to-wit:***

21 THE COURT: State your full name for the
22 record, please.

23 THE WITNESS: Herman Jones Gibb.

24 THE COURT: Mr. Green, you may
25 inquire.

1 MR. GREEN: Thank you, Your Honor.

2 **DIRECT EXAMINATION**

3 **BY MR. GREEN:**

4 Q. Dr. Gibb, will you tell us how you are
5 currently employed, sir?

6 A. I'm the president of Tetra Tech Sciences,
7 which is an operating unit of the Tetra Tech
8 Corporation.

9 Q. And is that a consulting company?

10 A. It's a consulting company, yes.

11 Q. And what kind of consulting does it do,
12 sir?

13 A. We do health-risk assessment consulting.

14 Q. I'd like now to turn to your education for a
15 moment. Can you tell us about that?

16 A. Yes. I have a Bachelor of Science degree
17 from Pennsylvania State University, I have a master of
18 public health and environmental health from the
19 University of Pittsburgh, and I have a Ph.D. in
20 epidemiology from Johns Hopkins University.

21 Q. And, sir, did you have any military
22 experience while you were earning your Ph.D.

23 A. Yes, sir. I was commander of my detachment,
24 my Army Reserve detachment, while I was working on my
25 Ph.D. at Johns Hopkins.

1 Q. And did that entail any active duty,
2 Dr. Gibb?

3 A. I was on active duty for three years, two
4 years after my commission through ROTC, and then my
5 reserve unit was mobilized for the Gulf War.

6 Q. And how many months on active duty did you
7 spend in connection with that war, sir?

8 A. Nine months.

9 Q. Now, Dr. Gibb, are you currently retired from
10 the Reserves?

11 A. Yes. I retired as lieutenant colonel.

12 Q. Are you associated with any university?

13 A. Yes. I'm on the faculty at George Washington
14 University in the School of Public Health.

15 Q. And did you have a career at the EPA, sir,
16 before your present job?

17 A. Yes, I did.

18 Q. And when did you start at the Environmental
19 Protection Agency?

20 A. 1974.

21 Q. And for how long were you at that agency,
22 sir?

23 A. A little bit over 29 years.

24 Q. So that would take us to what?

25 A. About 2004, early 2004, when I left.

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1 Q. Okay. I'd like to ask you to spend some time
2 and take us through your assignments and where you
3 worked within the EPA, if you would, sir.

4 A. Most of my time was spent at the National
5 Center for Environmental Assessment, which is part of
6 the Office of Research and Development at EPA.

7 Q. Okay. Why don't you just slow down just
8 a -- just a little bit, if you will, please.

9 A. Okay.

10 Q. You mentioned the National Center for
11 Environmental Assessment. What is the work of that
12 center, Dr. Gibb?

13 A. Well, the center develops the risk assessment
14 methodology for the agency and they do some of the
15 high-profile risk assessments -- or they do the
16 high-profile risk assessments.

17 Q. Now, when you say that the agency develops,
18 and you helped to develop, the health-risk assessment
19 methodology for the EPA, can you help us to understand
20 what that means?

21 A. Right. Well, the center develops guidelines
22 in how to do risk assessment. So, for example, they
23 do exposure assessment methodology, they do
24 developmental toxicity methodology on how to assess a
25 carcinogen. I was particularly involved with the

1 carcinogen risk assessment methodology.

2 Q. Let's go beyond that for just a moment and
3 ask you what were some of the positions which you held
4 at the National Center for Environmental Assessment?

5 A. Well, I started as a staff epidemiologist and
6 I was a branch chief. I became the assistant center
7 director. I was the associate director for health.

8 Q. And is that the position that you had when
9 you left the EPA, Doctor?

10 A. Pretty much. For a couple of months
11 before -- a few months before I left I was the science
12 advisor to the director.

13 Q. To the director of the agency?

14 A. To the director of the National Center for
15 Environmental Assessment.

16 Q. Okay, sir. Now, did you have any involvement
17 in establishing water quality standards while at the
18 Environmental Protection Agency?

19 A. Yes. I worked particularly on the arsenic
20 standard, but I also was involved with the office of
21 water and some of the other drinking water standards.

22 Q. Doctor, what was the result of the work that
23 you did with regard to the water quality standards
24 that relate to arsenic?

25 A. The drinking water maximum contaminant limit

1 was lowered by fivefold as part of that work.

2 Q. Part of the work that you did?

3 A. Part of the work that I did.

4 Q. Okay. Have you, sir, received any awards
5 while you were working for the Environmental
6 Protection Agency?

7 A. Yes, sir. I received the Gold Medal from the
8 agency on the work that I did on arsenic. I received
9 the agency Scientific and Technical Achievement Award
10 for my epidemiology study of chromate production
11 workers. I received an award for international
12 environmental protection. And -- I mean, I received a
13 number of other awards. Just too many to describe
14 here.

15 Q. Okay. We won't take the time to do that.

16 Let me switch directions just a bit and ask
17 you whether you were involved in the aftermath of the
18 tragedy at the World Trade Center in this country?

19 A. Yes. I directed the assessment of the
20 ambient pollution that resulted from the center. We
21 had a number of air monitors set up around the center,
22 and we had hundreds of thousands of data points which
23 we analyzed.

24 Q. And were you analyzing them to assess their
25 health impact on the local population?

1 A. Yes, we were.

2 Q. Doctor, did you publish a report based on
3 your work?

4 A. Yes, we did.

5 Q. And did you reach any conclusions in that
6 report?

7 A. We concluded that there wasn't -- there
8 wouldn't have been a health risk and there wasn't
9 sufficient exposure to have caused the problem.

10 Q. To cause adverse health --

11 A. To cause adverse health effects, correct.

12 Q. All right. Are you involved, or have you
13 been involved, with the World Health Organization in
14 any manner throughout your career?

15 A. Yes. I've worked with World Health
16 Organization for over twenty years. I currently chair
17 a task force of the World Health Organization. I'm
18 looking at the burden of disease from chemicals in
19 food. I recently prepared a report on air pollution
20 for the World Health Organization.

21 Q. Have you, sir, served on any White House
22 interagency committees?

23 A. Yes. I served on two White House interagency
24 committees on risk assessment and served on an
25 interagency -- a White House interagency committee on

1 mercury in the Gulf of Mexico.

2 Q. And I presume you have but let me ask you:
3 Have you authored any publications?

4 A. Yes. I've authored a number of journal
5 articles and book chapters and they are included in my
6 CV.

7 Q. Perhaps I should start by asking you to tell
8 us, or for that matter, remind us what epidemiology
9 is, sir.

10 A. Epidemiology is the study of disease and risk
11 factors for disease.

12 Q. And when we talk of risk assessment, what are
13 we meaning? What is risk assessment?

14 A. Risk assessment is taking the epidemiology
15 information, toxicology information, ancillary data,
16 and then evaluating what the risk would be to a
17 population.

18 Q. And have you done that kind of work or that
19 kind of risk assessment during your career?

20 A. Absolutely. This is what I did for about
21 thirty years at the Environmental Protection Agency
22 and in the time since I've left the agency.

23 Q. Okay. Is it possible to give us just a
24 couple of specific examples of what you've done in
25 that regard?

1 A. Well, for example, I did the risk assessment
2 on arsenic which I described. I did a risk assessment
3 on chromium which then led to the epidemiology study
4 which I did. I've done a number of chemical
5 assessments. I mean, just too many to describe here
6 but --

7 Q. You mentioned sodium dichromate, did you? Is
8 there a reference to that?

9 A. Yes.

10 Q. Okay. And tell us a little bit about that
11 study. Did it lead to any changes in any regulation,
12 Doctor?

13 A. Yes. That study became the basis of the OSHA
14 permissible exposure limit, the current permissible
15 exposure limit, which lowered the permissible exposure
16 limit by tenfold -- by more than tenfold actually.

17 Q. Now, with regard to that undertaking, were
18 you asked to testify before the United States Senate?

19 A. Yes. I was asked to testify before the
20 Senate in August of 2009 and then in October of 2009.
21 It's related to sodium dichromate exposure to which
22 soldiers have been exposed to in Iraq. Subsequently,
23 I was interviewed by NBC Nightly News shortly after
24 the Senate testimony.

25 Q. All right. Doctor, are you still involved

1 with the Environmental Protection Agency in any way?

2 A. Yes. Last week I chaired a peer review of
3 one of their chemical assessment documents. I
4 currently -- I recently authored a paper with people
5 from the Environmental Protection Agency that we are
6 submitting to a journal. I regularly do peer reviews
7 of assessments that the agency has done. Currently,
8 I'm evaluating scholarship -- or fellowship
9 applications to the agency.

10 Q. Let me bring us more in focus here with
11 respect to the matter at hand and let me ask you, sir:
12 What have you been asked to do in connection with this
13 case, Doctor?

14 A. I was asked to evaluate the plaintiff's
15 opinions with regard to disinfection byproducts and
16 cyanobacteria.

17 Q. Insofar as they relate to the --

18 A. As far as they relate to the Illinois River
19 Watershed and any health effects that these substances
20 may be causing.

21 Q. Okay. Now, in respect to doing that, Doctor,
22 have you reviewed any of the written opinions which
23 were submitted by one or more of the plaintiff's
24 experts?

25 A. Yes. I reviewed the opinions of Dr. Teaf and

1 Dr. Cooke.

2 Q. Okay. And with respect to trial testimony,
3 did you review either Dr. Cooke's or Dr. Teaf's trial
4 testimony?

5 A. I was here for Dr. Teaf's testimony and I
6 reviewed in more summary fashion Dr. Cooke's
7 testimony.

8 Q. Let me then direct your attention to the
9 subject of disinfection byproducts, if I may. I'm not
10 going to go through with you how disinfection
11 byproducts are created because that's been amply
12 testified to by others during the course of this
13 trial.

14 But since you were here for Dr. Teaf's
15 testimony, can you tell us which disinfection
16 byproducts he testified about, Doctor?

17 A. He discussed total trihalomethanes and the
18 haloacetic acids.

19 MR. GREEN: Okay. I'll be brief here.
20 Some of this, Your Honor, was testified to some extent
21 by Dr. McGuire, but for context I think we can move
22 through it really quickly.

23 Q. (BY MR. GREEN) Dr. Gibb, can you confirm for
24 me that the EPA has established regulatory limits for
25 trihalomethanes and haloacetic acids?

1 A. Yes, they have.

2 Q. And those limits, sir, where can they be
3 found?

4 A. It's in the stage I disinfection byproducts
5 rule.

6 Q. And that rule went into effect?

7 A. In 1998.

8 Q. And, Doctor, quickly those limits are for try
9 trihalomethanes and haloacetic acids?

10 A. Eighty micrograms per liter for
11 trihalomethanes and 60 micrograms for haloacetic
12 acids.

13 Q. All right, sir. If you have -- if you'll
14 reach to your folder there and pull out an exhibit
15 that we've already seen here this morning, State of
16 Oklahoma 5212.

17 Do you recall this exhibit being used by
18 Dr. Teaf when he testified and actually by Doctor --
19 were you here this morning to listen to Dr. McGuire's
20 testimony as well?

21 A. Yes. Yes, I was.

22 Q. All right. So then you'll recall that
23 reference was made to it during Dr. McGuire's
24 testimony as well, sir.

25 Now, what do you understand that this exhibit

1 purports to show?

2 A. Well, it purports to show that there are what
3 Dr. Teaf termed exceedances of different values.
4 Dr. Teaf was sort of -- has a sort of potpourri of
5 criteria here which he has claimed to have been
6 exceeded, and therefore -- I mean, he drew from that
7 conclusion that there were problems with disinfection
8 byproducts.

9 Q. Okay. And did you under him to testify that
10 these are all single sample concentrations?

11 A. These are all single sample concentrations,
12 correct.

13 Q. Do you agree with Dr. McGuire's conclusion
14 here given earlier today that none of these
15 numbers -- none of these concentration values on
16 Exhibit 5212 represent regulatory violations of the
17 EPA's stage I rule?

18 MR. BULLOCK: Judge, I'm going to object
19 to this being cumulative when one witness is asked to
20 agree with the immediately --

21 MR. GREEN: I'll rephrase the
22 question.

23 Q. (BY MR. GREEN) Do any of these numbers, any
24 of these values, any of these concentrations reflected
25 on Exhibit 5212, do they constitute violations of the

1 EPA's maximum contaminant levels set forth in the
2 stage I disinfection byproduct rule?

3 MR. BULLOCK: Continues to be
4 cumulative.

5 THE COURT: Overruled. Go ahead.

6 A. No.

7 Q. (BY MR. GREEN) Now, Doctor, I'm going to
8 just change direction here a little bit but use this
9 chart. I want you to look at the chloroform column,
10 if you will. And under the chloroform column,
11 Dr. Teaf has included something called a risk-based
12 level. Do you see that?

13 A. Yes.

14 Q. And there's an asterisk there after
15 "risk-based." If we follow that asterisk down to the
16 bottom of the page, the notation says, "U.S. EPA
17 Region 6 health-based screening level."

18 Do you see that, sir?

19 A. Yes.

20 Q. What do you understand that to refer to?

21 A. Well, it's a screening level that EPA Region
22 6 developed for industrial waste sites. But it is as
23 its name implies, it is a screening value and it's
24 used to set priorities and focus risk assessment
25 efforts. But it's not -- it does not -- I mean, if

1 you're -- if -- if a concentration is in excess of
2 that, it doesn't mean that there's a violation of
3 anything.

4 Q. Okay. In its drinking water regulations,
5 does the Environmental Protection Agency regulate to
6 any screening level such as this?

7 A. No.

8 Q. All right. Let's move a little bit to the
9 right and look at the columns under the constituents
10 dibromochloromethane and bromodichloromethane, Doctor.
11 They also have references to risk-based concentration
12 levels and I want to ask you this question.

13 Do these risk-based levels under what I'll
14 call the bromo columns, do they represent violations
15 of EPA's stage I disinfectant byproduct rule?

16 A. No.

17 Q. Where do these risk-based concentrations come
18 from that Dr. Teaf has used on this chart, Exhibit
19 5212?

20 A. They come out of the stage II rule and they
21 are -- the concentration would be associated with a
22 theoretical one-in-a-million risk.

23 Q. Go ahead.

24 A. It's theoretically derived. I mean, it's --

25 Q. Okay.

1 A. -- not observed.

2 Q. In that stage II rule discussion where a
3 theoretical concentration associated with a
4 one-in-a-million cancer risk, were there other
5 concentrations discussed as well?

6 A. Yes. He could have used -- there was a 10 to
7 the minus 5th risk that was discussed in the
8 supporting documentation that went with the stage II
9 rule. But Dr. Teaf chose to use the 10 to the minus
10 6th risk, which, of course, means that he's going to
11 find more of what he calls exceedances over the
12 number.

13 Q. Okay. Let's stay on this for just a second
14 longer.

15 Even with respect, Dr. Gibb, to the
16 assessment of a one-in-a-million cancer risk, is that
17 based on human or animal studies, sir?

18 A. Based on animal studies.

19 Q. And are the doses low? Average? High? Can
20 you categorize that?

21 A. Doses are very high.

22 Q. How high are they, Doctor?

23 A. Well, the dose that would have caused -- the
24 lowest dose, which would have caused tumors in the
25 animals, is at least 10,000 times greater than the

1 concentration that would be associated with a
2 one-in-a-million risk.

3 Q. So let me see if I can kind of put that into
4 another frame of reference.

5 How much water would an individual have to
6 drink at the maximum contaminant level to be exposed
7 to the lowest dose which would cause cancer in
8 animals?

9 A. Well, it depends on the disinfection
10 byproduct. But you would have to drink -- and this is
11 at the -- at the MCL, which is the highest
12 limit -- highest concentration allowed -- again, it's
13 over -- it reflects a running average of quarterly
14 samples. But you would have to drink about at least
15 300 gallons of water up to as much as 8,000 gallons of
16 water every day for the rest of your life.

17 Q. So, sir, what does Dr. Teaf's single sample
18 analysis reflected in Oklahoma Exhibit 5212 tell you
19 about whether these water utilities, these 18 water
20 utilities that are listed on the left side of the
21 exhibit, were in violation of the maximum contaminant
22 levels set by the EPA for disinfection byproducts?

23 A. Well, they're not saying anything about
24 whether they were in violation of the maximum
25 contaminant limit because they are single samples.

1 Q. Okay. And with respect to these percentages
2 that are set out on the bottom of the chart under the
3 respective columns, from your perspective, sir, and
4 the perspective of health to the human population, are
5 these percentages at all meaningful?

6 A. No. They're meaningless.

7 Q. Doctor, let me ask you whether or not the
8 Oklahoma Department of Environmental Quality has
9 adopted the EPA's stage I rule with regard to maximum
10 contaminant levels in connection with its monitoring
11 of Oklahoma's water quality?

12 A. Yes, they have. In fact, they refer to it on
13 their Web site.

14 Q. There have been some references -- in fact,
15 His Honor asked a question this morning -- concerning
16 the stage II disinfectant byproduct rule. When does
17 that go into effect?

18 A. 2012.

19 Q. And I'd like to just confirm that that does
20 not change, does it, the maximum contaminant levels
21 for trihalomethanes or haloacetic acids?

22 A. No, it does not.

23 Q. What, if anything, will change from the stage
24 I rule, Doctor, to the stage II rules?

25 A. I think -- I mean, it's a fairly large

1 document, but I think the most important change is
2 there will be more intensive monitoring.

3 Q. All right. In your packet there, you should
4 have a demonstrative which has the number 256 on it.
5 Do you see that, sir?

6 A. Yes, I do.

7 Q. This is a demonstrative that Dr. Teaf
8 discussed during his testimony when he was here at
9 this trial.

10 What did you understand to be the point of
11 this chart, Dr. Gibb?

12 A. Well, Dr. Teaf was trying to demonstrate that
13 these are -- have carcinogenic potential in humans.

14 Q. Let me go kind of to the bottom line here --
15 one of the bottom lines.

16 Have studies shown a definite connection
17 between disinfection byproducts and cancer in humans?

18 A. No.

19 Q. Can you help me to understand what these
20 studies have been based on?

21 A. These studies -- I mean, these
22 classifications are all based on animal data.

23 Q. And what about the level of doses?

24 A. And the doses are very high, I mean, to which
25 the animals are exposed.

1 Q. When you look at these initials -- do you see
2 that in the top line of --

3 A. Yes.

4 Q. -- or I guess the second line of this exhibit
5 IARC and NTP and EPA? Do you have that in view
6 there?

7 A. Yes.

8 Q. Are all three of those organizations
9 regulatory agencies, Doctor?

10 A. No. The only one is the Environmental
11 Protection Agency, which is the far right-hand column.

12 Q. Now, these descriptors that appear in the
13 yellow portion -- possible and reasonably anticipated
14 and probable -- do they all relate to a theoretical
15 risk?

16 A. Well, what they are is they have taken the
17 animal evidence and concluded from that that there
18 could some potential for humans.

19 Q. Are these classifications currently in use by
20 the Environmental Protection Agency?

21 A. Actually, these are not. Dr. Teaf has used
22 an old -- the old classifications which came out of
23 the 1986 guidelines. The current guidelines were
24 published in 2005. I actually was part of those
25 guidelines, in developing those guidelines.

1 But now they would say it's -- either human
2 carcinogen or likely -- I mean, the evidence is that
3 it's a human carcinogen. The evidence is that it's
4 likely or suggestive or there's inadequate evidence to
5 evaluate or it's not likely to be a carcinogen.

6 Q. Okay. If you just focused on chloroform,
7 which is the first constituent listed under this
8 chart, what would be the significance of using the
9 most recent classification?

10 A. Well, one thing is that the agency allowed
11 for in its current guidelines is that the mode of
12 action is taken into consideration.

13 What the agency says for chloroform is that
14 it is not likely to be a carcinogen if there
15 is -- unless -- unless there is cell cytotoxicity and
16 cell regeneration and that's what happens at the high
17 doses. So the agency recognized that the exposures to
18 which the animals were exposed were so high they were
19 causing this effect.

20 You would not see those concentrations in a
21 drinking water supply. I mean, they're far below what
22 the animals were exposed to to have caused the
23 cell -- the cellular cytotoxicity and the cell
24 regeneration.

25 Q. Dr. Gibb, in the latest evaluation of cancer

1 risks, which I think you said -- and with respect to
2 the change in classification that took place in 2005,
3 did the Environmental Protection Agency find any of
4 these constituents that are listed on this
5 demonstrative 256 to be causally associated with an
6 increased risk of cancer in humans?

7 A. No.

8 Q. Now, in this trial, there has been a mention
9 of possible risks to embryos associated with using
10 chlorine to treat drinking water. If my memory serves
11 me right, I believe we heard Dr. Cooke refer to embryo
12 toxicity, if I'm right. Let me just ask you this.

13 What is embryo toxicity?

14 A. Embryo toxicity would be toxicity to the
15 embryo or it would be reproductive or developmental
16 toxicity.

17 Q. Has the Environmental Protection Agency,
18 Dr. Gibb, determined that there is any causal
19 association between disinfection byproducts and embryo
20 toxicity?

21 A. No.

22 Q. Let me turn to one other exhibit that I think
23 Dr. Teaf addressed, if I may. If you will go to
24 Oklahoma Exhibit 5213, which is in your packet.

25 Do you have that in front of you, sir?

1 A. Yes, I do.

2 Q. All right. Do you recall that Dr. Teaf made
3 reference to this Exhibit 5213 during his testimony?

4 A. Yes.

5 Q. And what did you understand Dr. Teaf's point
6 to be in using this chart, Dr. Gibb?

7 A. Well, Dr. Teaf indicated at these three
8 facilities -- Cherokee RD No. 2, Gore PWA, and
9 Tahlequah -- that there were what he termed
10 exceedances, again a variety of different criteria
11 which he has selected, suggesting that there were a
12 number of, I presume, violations or issues with these
13 facilities.

14 Q. And this is with respect to finished water,
15 right, treated water?

16 A. With respect to finished water, correct.

17 Q. When you look at this chart, Dr. Gibb, from
18 your perspective, what's wrong with the data on this
19 chart insofar as how Dr. Teaf attempted to use it?

20 A. Well, again, it's -- I mean, these are single
21 samples. I think that -- again, I mean, he's using
22 dibromochloromethane, you know, risk-based values that
23 are, you know, from animals for very high exposures
24 and trying to relate that. And from that, he's basing
25 that there is a health risk.

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1 I might point out that chloroform, the MCLG
2 cites as 70, and we move over -- which we had
3 discussed earlier about the .17 screening level. It's
4 interesting that the MCLG is the concentration below
5 which the Office of Water, headquarters of EPA,
6 believes there is no known or expected health risk,
7 yet the screening level is 400 times below that.

8 So there's obviously -- you know, this is
9 just sort of a collection of criteria which he then
10 uses to find that there are concentrations above these
11 different criteria which he has selected.

12 Q. Do these numbers have any significance from a
13 regulatory perspective with respect to the stage I
14 disinfectant byproduct rule?

15 A. None at all.

16 Q. Now, just quickly, Dr. McGuire this morning
17 indicated that he had determined that there were 25
18 actual disinfection byproduct violations using the
19 rolling annual average.

20 Do you recall that testimony?

21 A. I think he said 24.

22 Q. Twenty-four. I'm sorry. Yes, 24.

23 Having heard Dr. McGuire's testimony in that
24 respect and having reviewed and seen and listened to
25 Dr. Teaf's testimony, can you reconcile their

1 respective findings about disinfection byproduct
2 violations?

3 A. Well, you can reconcile them because
4 Dr. McGuire looked at actual violations. Dr. Teaf
5 just found numbers and then took single samples and
6 found them to be in excess of --

7 MR. BULLOCK: Judge, I'm going to object
8 to the testimony of this witness reflecting upon what
9 Mr. McGuire said about what Mr. Teaf said -- Dr. Teaf
10 said.

11 MR. GREEN: Well, let me rephrase it.

12 THE COURT: Well, it's duplicative, is
13 it not?

14 MR. GREEN: Pardon?

15 THE COURT: It's duplicative, right, and
16 cumulative?

17 MR. GREEN: Well, this exhibit wasn't
18 used in any of the testimony this morning, to the
19 extent that I'm questioning him about 5213. But what
20 I'm just trying to simply get him to confirm is that
21 there is no way to reconcile the testimony of Dr. Teaf
22 and with his exceedances any actual -- you know, any
23 actual count of regulatory violations. I don't think
24 that's really duplicative but --

25 THE COURT: I think it's clear, you

1 know, as Ms. Xidis pointed out, he used the term
2 "exceedances," he didn't use the term "violations."

3 MR. GREEN: Very well, sir.

4 THE COURT: Sustained.

5 Q. (BY MR. GREEN) Now, Doctor, did you
6 investigate whether there were any actual regulatory
7 exceedances of the stage I disinfection byproduct rule
8 at any of the three utilities that are reflected on
9 Oklahoma Exhibit 5213?

10 A. Yes, I did.

11 Q. And did you prepare a demonstrative to set
12 forth the findings that you reached?

13 A. Yes, I did.

14 Q. Okay. If you would retrieve our
15 Demonstrative No. 318 there from your packet, Doctor.

16 A. This is the --

17 Q. Pardon?

18 A. I don't think this is the correct
19 demonstrative.

20 Q. Okay.

21 A. This one correct -- this one's correct.

22 Q. The one that's on the screen?

23 A. Right. This is correct.

24 Q. Yes.

25 THE COURT: Can we take just a second to

1 get our real-time fixed?

2 (Short break)

3 THE COURT: Mr. Green, we're up and
4 running.

5 MR. GREEN: Okay, sir. Thank you.

6 Q. (BY MR. GREEN) So let me just back up a
7 click here, Doctor.

8 I asked you whether you had conducted your
9 own investigation to determine whether there were any
10 actual regulatory violations of the stage I
11 disinfectant byproduct rule at any of the three
12 utilities that are listed here on Exhibit 5213?

13 A. Yes, I did.

14 Q. All right. And then did you prepare a
15 demonstrative to set forth the results of your
16 investigation?

17 A. Yes. I looked at the years 2004, 2005, 2006,
18 2007 for those three utilities, and this comes from
19 the OED office -- the Oklahoma Department of
20 Environmental Quality annual reports. The only one
21 that had violations of the three was Gore PWA in 2005.

22 Q. Okay. And is that one violation?

23 A. And that was one violation.

24 Q. Now, Doctor, even if there is a regulatory
25 violation, such as the one at the Gore Public Water

1 Authority in 2005, does that mean that the water is
2 unsafe to drink?

3 A. No. It's not -- I mean, I don't even think
4 at two times the MCL that the water would be unsafe to
5 drink. I mean, again, the risks that are estimated
6 come from very high doses in animals. So we have no
7 experience -- we have no evidence to confirm that
8 these risks even occur in a human population.

9 Q. Does the Illinois River Watershed have a high
10 number of violations as compared to other areas of the
11 state? Did you investigate that?

12 A. Yes.

13 MR. BULLOCK: Objection to the relevance
14 of this inquiry.

15 MR. GREEN: It has the same relevance
16 that Your Honor found acceptable in connection with
17 the prior interrogation.

18 THE COURT: Overruled.

19 Q. (BY MR. GREEN) With respect to this issue,
20 did you make any investigation of actual regulatory
21 violations statewide?

22 A. Yes, I did.

23 Q. All right. And did you create a map or an
24 exhibit to illustrate your analysis?

25 A. Yes, I did.

1 Q. All right, sir. If we could move to pulling
2 from your packet Defendants' Joint Exhibit 3690. Do
3 you have that in front of you?

4 A. Yes, I do.

5 Q. Eighty-nine. I'm sorry. It's 89.

6 Okay. Doctor, was this map or exhibit
7 included in your report?

8 A. Yes, it was.

9 Q. And where does the data come from? How did
10 you create this, sir?

11 A. This comes from the Oklahoma Department of
12 Environmental Quality's SDWIS database.

13 MR. BULLOCK: Judge, could we wait until
14 it's at least offered before we begin publishing it?

15 THE COURT: I agree.

16 MR. GREEN: I didn't notice that it went
17 up, Your Honor.

18 Based on Dr. Gibb's last couple of answers,
19 Your Honor, I move the admission of Defendants' Joint
20 Exhibit 3689?

21 THE COURT: Any objection?

22 MR. BULLOCK: Just one more in a long
23 line of exhibits that have nothing to do with proving
24 the truth or falsity of any of the matters at issue in
25 this case.

1 THE COURT: Well, as I say, we won't
2 look at this in a vacuum but it is relevant. The
3 objection's overruled. 3689 is admitted.

4 Q. (BY MR. GREEN) Okay. Doctor, looking at
5 this exhibit, how does this inform your analysis about
6 regulatory violations in the Illinois River Watershed
7 as compared to other portions of the state?

8 A. Well, I mean, you can see the Illinois River
9 Watershed is depicted on the maps for 2004, 2005,
10 2006, 2007. And I mean, it's -- I think it's obvious
11 that the -- there are no more DBP violations in the
12 Illinois River Watershed than there are in any other
13 place in Oklahoma.

14 You can see -- I mean, some of them are
15 fairly high, like the one down on the Texas border. I
16 think that's Tillman County. A fairly high proportion
17 in 2006 and 2007. I think it's Nowata County that's
18 up in the Kansas border that had a fairly high, but
19 not in the Illinois River Watershed. It's just not
20 been -- it did not appear to be anymore violations.
21 In fact, it looks like even less violations there than
22 any other place in the state.

23 Q. All right, Doctor. Finally, let me draw your
24 attention to one of Dr. Teaf's ultimate opinions which
25 he testified to.

1 MR. GREEN: And I'm quoting right from
2 the transcript, if I may, Your Honor.

3 Q. (BY MR. GREEN) And Dr. Teaf said this while
4 on the witness stand.

5 "The breadth, both in time and space, of the
6 detected concentrations of DBPs that are found in the
7 Illinois River Watershed water treatment plants, the
8 magnitude of those concentrations and the significance
9 of the substances renders this to be a significant
10 health issue."

11 Do you remember Dr. Teaf providing the court
12 with that opinion?

13 A. Yes, I do.

14 Q. Do you agree with Dr. Teaf's opinion, sir?

15 A. No, I don't.

16 Q. Why not?

17 A. I think this is -- I think this statement is
18 a gross misrepresentation of the information that's
19 available. Dr. Teaf has taken sort of a collection of
20 criteria and found single samples that exceed those
21 criteria.

22 For example, he had the inconsistency of
23 using an MCLG for chloroform and then a risk-based
24 value, which themselves putting them beside each other
25 wasn't even consistent. Taking what he called

1 risk-based numbers, which are based on extrapolations
2 from doses in animals that are extremely high, we
3 would never be able to detect in the human population
4 those -- those risks.

5 And then, of course, if the idea -- although
6 he may have said "exceedances" -- used the term
7 "exceedances" as opposed to "violations." But if the
8 idea was that total trihalomethanes and haloacetic
9 acids were somehow in violation, they weren't. So I
10 think this is -- I mean, I think he's been
11 disingenuous in the way he's presented the data.

12 Q. All right, Doctor. Do you still have 5212 up
13 there near you? Let me just take you back to that for
14 a moment.

15 A. Yes, I do.

16 Q. Now, on the left side of that exhibit are the
17 18 water utilities drawing water from the Illinois
18 River Watershed. Do you acknowledge that?

19 A. Yes.

20 Q. Sir, have you seen any information or
21 developed any information that the State of Oklahoma
22 has ever stopped any of these water utilities from
23 providing finished water to its customers in the
24 Illinois River Watershed at any time in, let's say,
25 the last decade?

1 A. No.

2 Q. Let me take a few moments to talk to you
3 about cyanobacteria.

4 Did you discuss cyanobacteria in your expert
5 report?

6 A. Yes, I did.

7 Q. And tell us briefly what cyanobacteria are,
8 sir.

9 A. Cyanobacteria are organisms that have some
10 properties of bacteria and some algae and they
11 photosynthesize. So there's somewhat different but
12 they can also produce some toxin.

13 Q. Are they a recent phenomenon?

14 A. No, they're not. I mean, they have been
15 studied for over a hundred years and, in fact, they
16 were noted in the 12th Century. I mean, there are
17 reports in the literature of observations of them in
18 the 12th Century. They're also commonly referred to
19 as blue-green algae.

20 Q. And where is this algae, this cyanobacteria,
21 found?

22 A. Where's it found?

23 Q. Where's it found? Is it found everywhere?

24 A. Oh, it's found in -- it's found throughout
25 the world. It's found in freshwater, in marine water,

1 and brackish water.

2 Q. And found throughout the United States?

3 A. And found throughout the United States,
4 yes.

5 Q. Okay. Do all cyanobacteria produce toxins?

6 A. No, not all produce toxins. About 60 percent
7 produce toxins.

8 Q. And is there a most common toxin produced by
9 cyanobacteria?

10 A. Most common is microcystin-LR.

11 Q. And has this toxin, microcystin, been
12 detected in waterbodies throughout the United States
13 well beyond the Illinois River Watershed?

14 A. Yes, it has.

15 Q. Did you, sir, in your report prepare any map
16 or demonstrative explaining that?

17 A. Yes, I did.

18 Q. All right. Why don't we take our last
19 document out of the packet here, which is Defendants'
20 Joint Exhibit 3691, Doctor. And this was in your
21 report; is that correct?

22 A. Yes, it was.

23 Q. And where does the -- where does the data
24 come from that's depicted on this exhibit, Doctor?

25 A. This is a U.S. Geological Survey map. It was

1 published in 2000 --

2 Q. Pardon?

3 A. It was published, I believe, in 2008.

4 Q. All right, sir.

5 MR. GREEN: Your Honor, I move the
6 admission of Defendants' Joint Exhibit 3691.

7 MR. BULLOCK: Same objection as to
8 relevance.

9 THE COURT: All right. And pointing to
10 Dr. Teaf's testimony that Mr. Green just read
11 highlights the relevance. The objection's overruled.
12 3691 is admitted.

13 Q. (BY MR. GREEN) Can you just very briefly,
14 Dr. Gibb, tell us what this exhibit depicts and how
15 this informs your analysis, sir?

16 A. Well, you can see that the blue dots are no
17 detectable microcystin and the red dots are detectable
18 microcystin. You can see that it's found throughout
19 United States. It's particularly found in the upper
20 Midwest, also in the East Coast. But it doesn't -- I
21 mean -- I mean, the point being that it's found
22 throughout the United States. It's not uncommon.

23 Q. If you recall, Dr. Gibb, did the plaintiff's
24 experts find any evidence of microcystin during their
25 analysis of the watershed?

1 A. The plaintiff's own experts, Camp Dresser
2 McKee, found no evidence of microcystin in the
3 examples they took. Cooke and Welch cited a paper by
4 Lynch and Clyde in which there were five samples taken
5 in Lake Tenkiller. Two of them contain microcystin,
6 one was at 3.3 micrograms per liter and the other one
7 was at .35 micrograms per liter.

8 Q. And are those the only references to
9 demonstrated microcystin concentrations that you saw
10 in your investigation of this matter?

11 A. That is the only data that I am aware of that
12 demonstrate microcystin in the Illinois River
13 Watershed.

14 Q. Okay. Dr. Gibb, do some states regulate
15 concentrations of microcystin?

16 A. There are two states that I'm aware of that
17 regulate, Oregon and Vermont.

18 Q. And are the concentrations of microcystin
19 that you just mentioned that were found by Mr. Lynch
20 and -- or Dr. Lynch and Dr. Clyde, are they above or
21 below any existing state regulatory levels?

22 A. They are below.

23 Q. Has the State of Oklahoma issued any
24 regulations or guidance for cyanobacteria or
25 microcystin?

1 A. No.

2 Q. What about the State of Arkansas?

3 A. No.

4 Q. Are there federal levels providing for
5 acceptable concentration of -- concentration levels
6 in, you know, the federal system for microcystin?

7 A. No.

8 Q. Now, Doctor, there has been a reference in
9 this trial -- and I hope I'm pronouncing these
10 correctly -- cylindrospermopsis and
11 cylindrospermopsin.

12 Do you recall those references?

13 A. Yes, yes.

14 Q. Okay. What's the difference between
15 cylindrospermopsis and cylindrospermopsin?

16 MR. BULLOCK: In addition to the fact
17 that the court reporter might have difficulty
18 interpreting that, I don't believe that any of this is
19 in the doctor's report.

20 THE COURT: Is that correct, Mr. Green?

21 MR. GREEN: Your Honor, I will --

22 THE WITNESS: Actually, it was in
23 Dr. Cooke's testimony.

24 THE COURT: Well, but -- no, I'm sorry.
25 Mr. Bullock is stating that it's not in this witness'

1 report.

2 THE WITNESS: No, that's not correct.

3 THE COURT: All right. Go ahead,
4 Mr. Volpe.

5 Q. (BY MR. GREEN) If you can find -- do you
6 have your report there, Doctor?

7 A. Yes. Yes, I do.

8 Q. If you can find the reference, that will
9 probably be faster.

10 MR. GREEN: But, Your Honor, this is a
11 situation where the plaintiff's experts surfaced the
12 reference to this toxin while on the stand, and I
13 think it is --

14 THE COURT: Well, but if it was in their
15 expert's report and you came next, you didn't
16 reference it, it's new. The same rules apply.

17 THE WITNESS: It's -- I'm sorry.

18 THE COURT: But right now we're fencing
19 with ghosts and the witness says it's in his report.
20 So go ahead.

21 Q. (BY MR. GREEN) Doctor, have you found a
22 reference to this?

23 A. Yes, I have. If you go to -- turn to page 20
24 and paragraph 76.

25 THE COURT: Got it. Overruled. Let's

1 go.

2 MR. GREEN: Okay. Thank you.

3 THE COURT: Let's try to have a basis
4 for your objections before --

5 MR. BULLOCK: I just didn't remember it.
6 I apologize.

7 THE COURT: Yeah, I understand. It's a
8 big topic. Let's go.

9 Q. (BY MR. GREEN) With respect to these two
10 constituents I just mentioned -- and I'll provide the
11 reporter with the spelling -- but what's the
12 difference between cylindrospermopsis and
13 cylindrospermopsin?

14 A. Well, cylindrospermopsis is the genus, the
15 taxonomic genus, and cylindrospermopsin is the toxin.

16 Q. Okay. With respect to the toxin now,
17 cylindrospermopsin, in the course of your analysis for
18 this case, have you seen any evidence that any
19 cylindrospermopsin has ever been detected in Lake
20 Tenkiller?

21 A. No. And that's, you know, what I read to you
22 from my report, is that Lynch and Clyde detected no
23 cylindrospermopsin in Lake Tenkiller.

24 Q. Has any state or federal agency reported
25 cyanobacteria outbreaks in either drinking or

1 recreational water in the state of Oklahoma?

2 A. No.

3 Q. What conclusions, Doctor, have you reached
4 regarding health risks presented by the presence of
5 any cyanobacteria in Lake Tenkiller or the surface
6 waters in the IRW?

7 A. Well, there was no microcystin detected by
8 the plaintiff's experts, Camp Dresser McKee, in Lake
9 Tenkiller. The microcystin concentrations that were
10 cited by Cooke and Welch of Lynch and Clyde -- of the
11 Lynch and Clyde report reported low concentrations.
12 There was no cylindrospermopsin detected in Lake
13 Tenkiller.

14 Cyanobacteria is common throughout the United
15 States, it's not, you know, unusual. You know, it
16 defines cyanobacteria in a lake. So I -- and there
17 was no Centers for Disease Control reports of
18 cyanobacteria problems in the Illinois River
19 Watershed, or Oklahoma for that matter, and there was
20 none reported by the Oklahoma Department of Health.

21 Q. So, Doctor, do you believe that if there is
22 any cyanobacteria in the Illinois River Watershed and
23 Lake Tenkiller, do you believe it presents any risk to
24 human health?

25 A. No.

1 MR. GREEN: Very well. I think that's
2 all I have, Your Honor.

3 THE COURT: Cross-examination.

4 **CROSS-EXAMINATION**

5 **BY MR. BULLOCK:**

6 Q. Doctor, let's go back and talk about the
7 difference between minimum -- or maximum contaminant
8 loads and the maximum contaminant load goal, okay?

9 Those are two different concepts, are they
10 not?

11 A. It's maximum contaminant level, not load.

12 Q. Okay. Level. I'm sorry. Thank you for
13 correcting me.

14 A. Well, the difference is that the maximum
15 contaminant level is the level above which you're in
16 violation, if you have a concentration above that, if
17 you have a running quarterly sample of the maximum
18 contaminant level. Maximum contaminant levels here
19 are trihalomethanes and the haloacetic acids.

20 Q. Now, the maximum contaminant level goal,
21 though, is a different concept, is it not?

22 A. The maximum contaminant level goal --

23 Q. Doctor, can you answer my question? Is the
24 maximum contaminant level goal a different concept --

25 A. Well --

1 Q. -- than maximum --

2 A. -- it's a different -- I mean, it's different
3 than the maximum contaminant level.

4 Q. Okay. And there was a different approach in
5 terms of setting the two, was there not?

6 A. Well, I'm not sure what you mean by
7 "different approach." Different approach to set the
8 level or different approach to set it for these
9 particular compounds, trihalomethanes and haloacetic
10 acids?

11 Q. Well, let's start with for these particular
12 compounds setting the goal versus the maximum level
13 was approached from a different perspective, was it
14 not?

15 A. The goal would have been set from a different
16 perspective.

17 Q. Okay.

18 A. Okay.

19 Q. And the goal was based -- was looked -- was
20 set by the EPA looking purely at the question of human
21 health risks; is that not correct?

22 A. The goal is set looking at human health risk,
23 and the maximum contaminant level is set as close to
24 the goal as possible considering --

25 Q. Now, Doctor, I'm asking -- I'm going to ask

1 the court to strike --

2 MR. BULLOCK: Judge, I'm moving to
3 strike his attempting to be nonresponsive to the
4 question.

5 THE COURT: Yes. His answer stands
6 after the word "risk" -- or up to the end of the word
7 "risk"; in other words, "the goal is set looking at
8 human health risk." The rest of the answer is
9 stricken.

10 And, Doctor, you'll have an opportunity to
11 fill in with questions from Mr. Green after
12 Mr. Bullock asks the questions. Cross-examination is
13 usually framed by fairly direct questions which
14 generally call for fairly direct answers.

15 Go ahead.

16 Q. (BY MR. BULLOCK) Okay. So going back to the
17 goal, the evidence that the EPA had to substantially
18 rely on in setting the goals for the dissolution
19 byproducts was largely animal studies, as you say,
20 wasn't it?

21 A. The disinfectant byproducts.

22 Q. Yes.

23 A. Yes. To set -- right. That's correct.

24 Q. Okay. And, in fact, in doing -- in terms of
25 human cancer studies IN light of the fact that we

1 can't administer -- with any type of ethical basis
2 administer to individuals carcinogens or possible
3 carcinogens to see the response rate, it's not unusual
4 in science to rely upon animal studies for such
5 matters, is it?

6 A. No. I mean, there are a number of
7 epidemiology -- I mean, I did an epidemiology study of
8 chromate production workers. So, of course, you can
9 do studies --

10 THE COURT: Doctor, I think you've
11 answered the question.

12 Go ahead, Mr. Bullock.

13 Q. (BY MR. BULLOCK) Okay. And when the EPA
14 made the judgments concerning risk to human health,
15 are you contesting that was done on the basis of a
16 solid, scientific process?

17 A. I'm sorry. Would you restate the question.

18 Q. I'll be happy to.

19 When the EPA set the maximum contaminant
20 level goals for these dissolution byproducts --

21 A. Disinfectant.

22 Q. -- are you contesting that that was set on
23 the basis of a sound, scientific process?

24 A. There was a scientific process that set the
25 MCLG, yes.

1 Q. Okay. And are you contesting the soundness
2 of that process?

3 A. I'm not contesting the soundness of the
4 process.

5 Q. Okay. And, in fact, when you look at
6 Dr. Teaf's Demo 256, in fact, for instance, for
7 bromoform, the EPA has said that it is a probable risk
8 to human health; is that not true?

9 A. Well, as I said, they've changed the
10 classification.

11 Q. Okay. Well --

12 A. It's an old -- he's looking at an old
13 classification based on the 1986 guidelines.

14 Q. Well, Doctor, tell me whether this
15 doesn't -- and I only brought a copy. But this was
16 from the disclosed materials that defendants included
17 in their disclosure.

18 And, for instance, is this familiar to you,
19 this language: "The final" -- and this is just an
20 example -- "MCLG for bromoform is zero. The zero MCLG
21 is based on" -- let me get to the -- to the particular
22 language.

23 MR. GREEN: Your Honor, I object. We
24 don't even know where this is coming from. I mean,
25 the materials are quite extensive --

1 THE COURT: Yes, sir. You're entitled
2 to that.

3 MR. BULLOCK: Okay. This is from what
4 was in your disclosure of -- it's actually Oklahoma
5 Exhibit 5161, but it was a disclosure for this witness
6 delivered to us. Particularly, it is the ground and
7 drinking water -- national primary drinking water
8 regulations disinfectants and disinfectant byproducts,
9 and I see a date on it of May 2007. And I don't know
10 that this has been admitted.

11 Q. (BY MR. BULLOCK) But let me ask you whether
12 this language -- and this is what I'm reading for
13 bromoform --

14 MR. GREEN: May I give the witness a
15 copy of this?

16 MR. BULLOCK: If you have one, sure,
17 please. That will make it easier.

18 MR. GREEN: May I, Your Honor?

19 THE COURT: Of course. What page,
20 Mr. Bullock?

21 MR. BULLOCK: I'm looking at page 36.

22 THE COURT: I see a date of September
23 16, 1998 --

24 MR. BULLOCK: Well --

25 THE COURT: -- being printed in the

1 Federal Register.

2 MR. BULLOCK: Well, I was looking at
3 perhaps the wrong date.

4 THE COURT: Yeah. What you're looking
5 at is the date it was faxed, it looks like.

6 MR. BULLOCK: You're correct.

7 Q. (BY MR. BULLOCK) Okay. This is the '98
8 language; correct? Okay. And that's where they say
9 that it's a probable human carcinogen based on a
10 consideration of all relevant health data including
11 cancer and noncancer effects?

12 A. Yes. What --

13 Q. Okay.

14 A. And may I explain what I was referring to in
15 my discussion?

16 Q. Yeah. Please do so the record's clear.

17 A. Okay. And the stage II role utilized the
18 most recent -- stage II was published four years ago
19 now, okay -- the most recent guidelines which came out
20 in 2005, but what this refers to is to the old
21 evaluation done. And so what I'm pointing out is that
22 Dr. Teaf in his evaluations referred to the old
23 classification but that's important because of the
24 chloroform --

25 Q. Okay.

1 A. -- evaluation.

2 Q. Okay. Now, one of the things -- let's talk
3 about the MCLs, the maximum contaminant levels.

4 Those, as you say, are the regulatory
5 violation -- or the regulatory standards which if you
6 violate is a violation. And included in the setting
7 of those was an assessment of the issue of the
8 feasibility of upgrading plants to that level,
9 correct, cost and technology?

10 A. Cost and technology going to the MCL, that's
11 correct.

12 Q. Okay. So if you have waters which are below
13 the MCL, then you certainly wouldn't -- let me go
14 back.

15 In terms of human health risk, is it not
16 better to be below, first of all, the MCL? The
17 further you get below the MCL, the lower the health
18 risk would be; is that correct?

19 A. Well, but it's a theoretical health risk.

20 Q. Okay. Well, but a lot in science are
21 theoretical levels, particularly when you're dealing
22 with epidemiology; is that not true?

23 A. No, I don't agree with that.

24 Q. Well, we talked earlier about the fact that
25 the MCLGs were the result of a sound scientific

1 process.

2 A. It's a scientific process that evaluates the
3 animal data.

4 Q. Okay.

5 A. But, I mean, in this case the animal data.

6 Q. And from that, people extrapolate as to
7 whether people are -- whether human beings are at
8 risk; correct?

9 A. No, I wouldn't agree with that.

10 Q. Well --

11 A. The MCLs -- I mean, the Environmental
12 Protection Agency is a public health agency. They're
13 not going -- I mean, obviously they're going to set
14 the MCLs very conservative and as close to the MCLGs
15 as possible. I mean, they are a public health agency,
16 you want them to be protective, so they're going to
17 set very low standards -- very low regulatory levels.

18 If you were to estimate what the risk would
19 be, it would be a very low risk, a risk that, I mean,
20 actually would be impossible to detect in the human
21 population.

22 Q. Okay. But in the performance of their task
23 of protecting human health, they also want you to know
24 where the goal should be in terms of the minimum -- or
25 getting below a level where you believe there may be a

1 risk to human health; right? That's what MCLGs are
2 about?

3 A. Well, would you restate the question, please?

4 Q. All right. Well, obviously it wasn't formed
5 well so I appreciate that.

6 The MCLG --

7 A. Yes.

8 Q. -- that is set by the EPA at the level at
9 which there's no known or anticipated adverse health
10 effects; correct?

11 A. That's -- that's the definition.

12 Q. Okay. And so as you go above the MCLG level,
13 then at that point human health risks are increasing?

14 A. Entirely theoretical.

15 Q. Okay. Theoretically, the best-accepted
16 theories of when people might be at risk?

17 A. It's not the best-accepted theory. I mean,
18 as I indicated in my direct testimony, you could be at
19 twice the MCL, not the MCLG, and still not have any
20 risk.

21 Q. Doctor, are you rejecting then the judgments
22 of the EPA in terms of the fact that -- that as you
23 by -- as you get above the MCLG, that you are now into
24 an area where there is a possible or probable risk to
25 human health?

1 MR. GREEN: I object to that
2 characterization. Because counsel wants to state the
3 view of the EPA, and there is no evidence that that
4 is, in fact, the EPA's view.

5 MR. BULLOCK: Okay. Well, let me
6 rephrase.

7 THE COURT: Thank you.

8 Q. (BY MR. BULLOCK) Okay. When you get above
9 the MCLG, you are into -- or you are beyond the area
10 where it would declare that there was no known or
11 anticipated adverse health effect; right?

12 A. Again, I mean, it's a theoretical risk and I
13 wouldn't argue with the agency's process here. I want
14 the agency to set the MCL as low as possible given
15 cost and so forth.

16 And if they -- and through the process of
17 the -- whatever they set the MCLG at is fine, but it
18 doesn't mean that there is any risk of those
19 concentrations we haven't demonstrated in the human
20 population.

21 Q. Well, when you talk about -- talk about risk,
22 it is, in fact, that bad things might happen; correct?
23 It's not a certainty. There's an uncertainty always
24 when you talk about a risk to human health?

25 A. You can demonstrate risk in a human

1 population.

2 Q. Okay.

3 A. And they haven't here.

4 Q. Well --

5 A. Or we haven't.

6 Q. It is their judgment, is it not -- I mean, am
7 I missing something, that above the MCLG, that it is
8 their judgment that there is some risk to human
9 health?

10 A. Yeah. This was a discussion that we had --

11 Q. Well, I'm asking you, Doctor. Am I in error
12 when I read the MCLG as being a level where the EPA is
13 informing us that above the MCLG level there is a risk
14 to human health?

15 A. I think what the EPA is saying is that -- I
16 mean, again it's a conservative value and it's above
17 that we cannot demonstrate a risk, we can only
18 theorize a risk. I think, as I started to say
19 earlier, it is a debate that we had at the agency. We
20 don't know what the risks are above these estimated
21 values, particularly when it's only animal data.

22 *(Discussion held off the record)*

23 Q. *(BY MR. BULLOCK)* Now, let's talk for a
24 moment about cyanobacteria rather than you and I
25 continuing to chase one another around what is

1 becoming the same tree.

2 In terms of cyanobacteria, Doctor, you were
3 saying on your direct as to not having seen any data
4 in terms of the levels of cyanobacteria found in the
5 Illinois River -- or particularly in Lake Tenkiller.
6 Do you recall that? Or limited data. I guess you
7 talked about two -- let me go back.

8 In terms of the -- let's start like this.

9 In terms of the incidence of where
10 cyanobacteria has been detected, would you repeat for
11 me what you told the court on direct?

12 MR. GREEN: Object, Your Honor. He
13 testified about fifteen minutes on cyanobacteria.

14 MR. BULLOCK: Well, let me go about it
15 like this.

16 Q. (BY MR. BULLOCK) Doctor, in fact, you are
17 aware that Dr. Teaf did report repeated instances
18 where cyanobacteria was found in samples in Lake
19 Tenkiller?

20 MR. GREEN: Object to the form of the
21 question because it assumes a fact that really is not
22 in evidence in this trial. I don't believe Dr. Teaf
23 testified to that at all.

24 THE COURT: I believe this witness can
25 handle the question. Overruled.

1 Q. (BY MR. BULLOCK) Okay.

2 A. I don't recall. I mean -- I mean, I don't
3 recall Dr. Teaf talking about the levels of
4 cyanobacteria found in Lake Tenkiller.

5 Q. Do you recall -- let's see. Well, let me
6 just do it like this so that in terms of what the
7 record is it is.

8 To the extent that Dr. Teaf reported levels
9 of cyanobacteria being found in samples in Lake
10 Tenkiller, you're not today expressing any opinion as
11 to the accuracy of such observations, are you?

12 A. I mean, that sounds like a very hypothetical
13 to me. You're asking me to --

14 Q. Well, I'm just asking you whether you're
15 giving an opinion as to any testimony that Dr. Teaf
16 might have given as to the level of cyanobacteria in
17 Lake Tenkiller. Are you giving an opinion or not?

18 A. I don't recall that he testified to the level
19 of cyanobacteria in Lake Tenkiller.

20 Q. Okay. So you're giving no opinion on that?

21 A. Well, again, I don't recall him testifying to
22 that.

23 Q. Are you giving an opinion as to that?

24 MR. MCDANIEL: Your Honor, this argument
25 is useless. If there's specific testimony that

1 Mr. Bullock wants this witness to respond to, he needs
2 to confront him with that.

3 THE COURT: All right. Do you have any
4 notes, Mr. Bullock, as to what you believe this
5 witness said with regard to Dr. Teaf's findings or
6 conclusions relating to cyanobacteria?

7 MR. BULLOCK: Well, I have very sketchy
8 notes, Judge. I have a recollection of Dr. Teaf
9 having offered some numbers, and then when he
10 attempted to address the issue of health risk, we got
11 into the fight over the WHO standards as to measuring
12 as to how to assess those levels.

13 But that was my recollection of the testimony
14 and as briefly and cryptically reflected in my notes,
15 but I didn't go back to the transcript to confirm
16 that. And so -- well --

17 THE COURT: Look, I have no notes. I
18 tried to take good notes here.

19 What do you believe do you recall this
20 witness said with regard to Dr. Teaf and
21 cyanobacteria? I have no notes in that regard. We
22 can take a recess, you can go back and take a look,
23 but we're wasting time.

24 MR. BULLOCK: Judge --

25 THE COURT: Do you have any notes

1 relating to that which you wish to ask this witness?

2 MR. BULLOCK: Okay. My notes reflect
3 that -- well, let me move on so that I can --

4 THE COURT: No. I want you to ask the
5 question. If that was touched on in direct with this
6 witness, you have -- you have a right to do that.

7 I have no notes touching upon Dr. Teaf's
8 comments regarding cyanobacteria. This witness says
9 he doesn't recall saying anything about that or that
10 Dr. Teaf touched upon cyanobacteria.

11 Q. (BY MR. BULLOCK) Do you recall testifying in
12 this court today that Dr. Teaf reported that there was
13 cyanobacteria present in Lake Tenkiller?

14 A. In his testimony, no.

15 Q. Okay. In your testimony today, do you recall
16 testifying to that?

17 A. Do I recall testifying to whether there was
18 cyanobacteria?

19 Q. Whether --

20 MR. BULLOCK: I am going to move on,
21 Judge, just because I'm --

22 Q. (BY MR. BULLOCK) Let's talk about, though,
23 the relative risk of cyanobacteria, first of all, as
24 to whether there are standards.

25 Your testimony is actually that Oklahoma

1 doesn't have a numerical standard as to cyanobacteria;
2 is that correct?

3 A. That's correct.

4 Q. Oklahoma does have relevant standards as
5 to -- that would cover cyanobacteria in Lake
6 Tenkiller, do they not?

7 A. What are they?

8 Q. Well --

9 A. I don't know what they are.

10 Q. -- have you examined to see whether Oklahoma
11 might have standards, other than numerical standards,
12 which would govern the development of cyanobacteria in
13 Lake Tenkiller?

14 A. I'm not aware of any.

15 Q. Would a standard which required that there be
16 no degradation of water quality allowed in outstanding
17 resource waters be relevant to the issue of
18 cyanobacteria?

19 A. Very loosely, I guess.

20 Q. Okay. Because the growth of cyanobacteria in
21 Lake Tenkiller would be a degradation of that water,
22 would it not?

23 MR. GREEN: Your Honor, I object. We're
24 not here on some aesthetic narrative standard. The
25 witness is proffered as an expert in health risks that

1 are derived from or attached to cyanobacteria and not
2 whether they are somehow appealing to the human eye or
3 fail to meet some other narrative standard.

4 THE COURT: Well, I don't know, because
5 I'm an expert in cyanobacteria, as to whether or not
6 it would have violated aesthetic standards.

7 Overruled.

8 Go ahead.

9 MR. BULLOCK: Okay.

10 *(Discussion held off the record)*

11 Q. *(BY MR. BULLOCK)* Did you look at the
12 Oklahoma water quality standards before you gave your
13 opinion as to whether Oklahoma had a standard?

14 A. Yes.

15 Q. Okay. So, for instance -- and we have these
16 in the record of the court -- but I'm looking at
17 785:45-5-10, where the standard provides that these
18 waters shall be maintained so that they will not be
19 toxic, carcinogenic, mutagenic, or teratogenic to
20 humans.

21 Now, cyanobacteria, in fact, can be toxic to
22 humans, can it not?

23 A. Well, of course it could be toxic.

24 Q. And so if conditions are developing within
25 the lake which -- or if cyanobacteria is developing in

1 the lake, then that would be in violation of Oklahoma
2 water quality standards, wouldn't it?

3 MR. GREEN: I object, Your Honor. I
4 mean, that calls for a -- not only does it call for a
5 legal conclusion, but this is outside the scope of
6 direct beyond the zone of the witness' expertise as,
7 you know, called for in this case and I think this is
8 improper.

9 He's not even showing the witness -- having
10 the courtesy of showing the witness what standard he's
11 referring to. But I do think this is objectionable.

12 THE COURT: Calls for a legal
13 conclusion. I don't even have 45-5-10 in front of me.
14 But the legal hypothesis or basis is that if
15 conditions were developing within the lake which -- or
16 if cyanobacteria is developing in the lake, then that
17 would be a violation of Oklahoma water quality
18 standards. That's clearly calling for a legal
19 conclusion. Sustained.

20 MR. BULLOCK: Okay.

21 Q. (BY MR. BULLOCK) Cyanobacteria further would
22 be -- in sufficient concentrations will irritate the
23 skin or other organs of humans?

24 A. Could.

25 Q. In sufficient concentrations?

1 A. In sufficient concentrations. And I don't
2 believe that every toxin but --

3 Q. Are you expressing an opinion on whether
4 toxins would fall under that language or not?

5 A. No. That's not what I was indicating.

6 Q. Okay.

7 MR. BULLOCK: Give me just one moment,
8 Judge.

9 THE COURT: Yes, sir.

10 *(Discussion held off the record)*

11 Q. (BY MR. BULLOCK) Just to return for a minute
12 to MCLGs.

13 They are developed to ensure the protection
14 of the entire population; correct?

15 A. Are you reading from a publication?

16 Q. No. I'm reading from the notes that my
17 counsel gave me. And so -- I mean; is that true?

18 A. I mean, I don't know if that's the EPA
19 language but --

20 Q. Well, would that be your interpretation of
21 it?

22 A. I would go with the definition that the EPA
23 used as to what an MCLG is.

24 Q. Okay. And are they based -- are those -- one
25 last question in terms of this, or I think it's last.

1 Are MCLGs based on the available evidence of
2 carcinogenic -- of carcinogenic or noncancer adverse
3 health risks? Let me rephrase.

4 MCLGs are based upon the best evidence
5 available as to both cancer and noncancer risks,
6 aren't they?

7 A. They're used for cancer and noncancer risks,
8 yes.

9 Q. And the best available evidence?

10 A. Yeah. The best available evidence, yeah.

11 THE COURT: We're back to the same old
12 tree. Redirect.

13 MR. GREEN: Your Honor, just indulge me
14 for one moment.

15 THE COURT: Yes. Let me see if I
16 understand because we've gone around this same tree so
17 many times and I'm not sure it's enlightened the
18 fact-finder. I'm not sure anybody's really interested
19 in enlightening the fact-finder here but that's my
20 job.

21 MCLG is a goal; correct?

22 THE WITNESS: A goal.

23 THE COURT: It is not the regulatory
24 standard; correct?

25 THE WITNESS: That's correct.

1 THE COURT: All right. Anything else
2 you can do to clarify that for me? And as I
3 understand -- before you answer that, as I understand,
4 I think by going around that tree, you focused on the
5 following.

6 That the MCLG is set by EPA at a level at
7 which there is no known or anticipated adverse health
8 effects. Is that accurate?

9 THE WITNESS: That's correct.

10 THE COURT: All right.

11 THE WITNESS: I think the exact language
12 is no known or expected health effects, but that's
13 right.

14 THE COURT: All right. Anything else
15 you can do to clarify that distinction between an MCLG
16 and what an MCL limit -- what are you calling it?

17 THE WITNESS: Maximum contaminant level.
18 Maximum contaminant level is set as close to the MCLG
19 as possible given cost and technology.

20 The MCLG, as Mr. Bullock indicated, could be
21 based on cancer effects or noncancer effects.
22 Noncancer effects are usually you're looking at doses
23 in an animal and then -- it depends on how you arrive
24 at it. There's -- and maybe this is going beyond what
25 -- but you could use uncertainty factors to get there.

1 Usually an uncertainty factor is -- a thousand would
2 not be uncommon between the level where you found an
3 effect in an animal and where the MCLG is set.

4 They've more frequently have used what's
5 called a benchmark dose, and that's maybe going beyond
6 what the court -- but the benchmark dose takes --

7 THE COURT: Is that a third measure?

8 THE WITNESS: Well, no, it's not a third
9 measure. It's a way to get to the MCLG.

10 THE COURT: All right.

11 THE WITNESS: It's part of the modeling
12 effort to get to the MCLG.

13 But of course -- and the MCL is -- I mean, an
14 MCL itself is a conservative value. I mean, we -- I
15 mean, as I indicated, EPA is a public health agency.
16 They don't set standards. The agency has -- you know,
17 admits in its own information that these risk
18 assessments are conservative.

19 THE COURT: Clearly they did with
20 respect to arsenic; correct?

21 THE WITNESS: Of course. So --

22 THE COURT: But with respect to arsenic,
23 is there a lower MCLG than that which was set as the
24 MCL?

25 THE WITNESS: The MCLG is -- four

1 carcinogen is zero, they generally say zero. Because
2 the theoretical assumption is that any exposure would
3 produce some risk.

4 THE COURT: All right.

5 THE WITNESS: Now, again, that's a very
6 conservative assumption. I mean, it's a -- it's a
7 conservative assumption, you know, but that's what
8 they do with a carcinogen.

9 With a noncarcinogen, they may look at
10 something like hepatotoxic effects in an animal, and
11 then they either use these uncertainty factors, which
12 often are a thousand, to come up with a number; or
13 they use a benchmark dose, which is a modeling
14 approach to get there. That is also in connection
15 with certainty factors to get down to this lower MCLG.

16 THE COURT: Okay. It's reflective then
17 of that which we do not know as human beings? In
18 other words, it's a very conservative --

19 THE WITNESS: It's a very
20 conservative --

21 THE COURT: -- goal?

22 THE WITNESS: I mean, the MCL is
23 conservative. I mean, we don't demonstrate risks at
24 the MCL. I mean, we would be -- I mean, I would be
25 upset if the public health agency was, you know,

1 setting MCLs right where we could see effects. I
2 mean, the MCL itself is conservative.

3 THE COURT: So why set the MCLG if the
4 MCL itself is conservative?

5 THE WITNESS: Well, the MCL is where
6 they have -- I think it's to provide some scientific
7 aspect to it so that you can kind of tell sort of
8 where -- where you are in relation to the MCL. But --

9 THE COURT: Is it an aspirational goal?

10 THE WITNESS: An aspirational goal? I
11 don't think that they would ever -- you know, I mean,
12 they would never regulate, I think, to the MCLG. So
13 it's --

14 THE COURT: But an aspirational goal
15 would be reflective of that. You don't regulate to
16 that which is aspirational but --

17 THE WITNESS: I guess you could describe
18 it as such, those are aspirational, but not something
19 that one would think of as realistic and ever trying
20 to chief perhaps. But --

21 THE COURT: All right.

22 THE WITNESS: Just because the
23 concentrations -- I mean, these -- you know, getting
24 something to zero, for example, would be, I mean,
25 extremely difficult.

1 THE COURT: All right. Now, you were
2 obviously involved in the setting of the MCL with
3 respect to arsenic; correct?

4 THE WITNESS: I was -- right.

5 THE COURT: I mean, you were the
6 prime -- you were the point person; correct?

7 THE WITNESS: Well, what we did -- I
8 mean, I was in research and development, and we were
9 arguing for a lower -- you know, we did a risk
10 assessment, okay? What we did was the risk
11 assessment. The risk assessment then gets factored
12 into the setting of the MCL. And so that's what we
13 did was the --

14 THE COURT: So actually the arsenic MCL
15 was set higher than you wished it to be set; is that
16 correct?

17 THE WITNESS: No, not really. I mean,
18 it was -- I mean, the old standard was 50 micrograms
19 per liter. It was reduced to 10 micrograms per liter.
20 But, I mean, we couldn't even demonstrate that there
21 was actual risk at 50, but I think 10 was more in
22 keeping with what -- where the rest of the world was,
23 you know, with their arsenic drinking water
24 standard.

25 THE COURT: Mr. Green.

1 MR. GREEN: Your Honor, one moment. I
2 think, Your Honor, that we are -- I think in light of
3 the colloquy that you had with the witness there, that
4 we will have no additional questions to offer.

5 THE COURT: Very well. Thank you very
6 much. You are excused.

7 Now, we have the issues regarding rebuttal.
8 Motions typically would not be heard until after
9 rebuttal, and that's how I see it in terms of
10 procedure.

11 I think we need some time to focus on the
12 specific parts of the record and the -- the reports to
13 determine whether the anticipated -- or the testimony
14 plaintiff wishes to present in rebuttal could have
15 been fairly anticipated or not.

16 Do we have disclosures now with respect to
17 No. 2 and No. 3 as to the subjects or proposed
18 subjects of their testimony? As I understand it,
19 there is not.

20 MR. BULLOCK: No. No, Your Honor. I
21 gave you a brief summary of what I understand. But
22 we --

23 THE COURT: When can we do that?
24 Because obviously we can't really have a productive
25 conversation on that until the defendants are apprised

1 of the subject matter of the proposed rebuttal.

2 MR. BULLOCK: I think we anticipate
3 doing that in the morning with the other --

4 THE COURT: Well, but you're going to be
5 hitting them cold, and I need specific references to
6 expert reports, to testimony. Why don't you have that
7 done by -- can you do it by six o'clock tonight?

8 MR. BULLOCK: I will sure turn the jets
9 and do everything we can to do it.

10 THE COURT: Well, if you can't, I'll
11 make it seven or eight o'clock tonight.

12 MR. BULLOCK: Well, how about seven
13 o'clock? That would be helpful.

14 THE COURT: Okay. So by seven o'clock
15 tonight, the plaintiff needs to disclose, as to
16 proposed rebuttal witnesses 2 and 3, the subject
17 matter, the proposed testimony, so we can have a
18 meaningful discussion tomorrow morning.

19 Is there anything else we can accomplish here
20 today?

21 MR. BULLOCK: Have the defendants
22 rested?

23 MR. JORGENSEN: I was just going to say,
24 Your Honor, I can't pass up on this sweet moment.

25 *(Discussion held off the record)*

1 MS. HILL: If it please the court, I
2 have one remaining matter.

3 In combing through the record, we have
4 realized that there are two places that perhaps the
5 record could be more complete. On October 21st, '09,
6 Volume 26, with Teena Gunter, we admitted an
7 exhibit -- in fact, it was with direct, the state
8 admitted an exhibit. It is Exhibit 1191-A and it is
9 the videotape, the ODAFF training video.

10 And we propose for ease of reference in the
11 record that we admit as a court exhibit a
12 transcription of that video that has already been
13 admitted. We have shared this with the state's
14 counsel, and it's my understanding that they do not
15 have any objection to our transcription of the Teena
16 Gunter training video, Exhibit 1191.

17 So it's our intention to offer that
18 transcription, which we prepared, as a court exhibit.

19 THE COURT: All right. And that's 1191
20 or 1191-A?

21 MS. HILL: It is 1191-A.

22 THE COURT: All right. Any objection?

23 MR. NANCE: Your Honor, Exhibit 1191-A
24 was admitted, not for the truth of the matter, but for
25 the knowledge that it conveyed to the growers. So if

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1 the transcript is admitted for the same purpose, we
2 have no objection.

3 THE COURT: Very well. It will be
4 admitted for the same purpose. Exhibit 1191-A is
5 admitted for purposes of notice.

6 MS. HILL: Would you like our transcript
7 also to be Exhibit 1191-B, or shall we call that Court
8 Exhibit 16?

9 THE COURT: All right. I misunderstood.
10 So let's call that 1191-B.

11 MS. HILL: Okay. The transcript would
12 be 1191-B then. 1191 is the video itself.

13 THE COURT: So what is A?

14 MS. HILL: 1191-A is the video itself.
15 B would be the transcription that we are offering
16 right now.

17 THE COURT: All right. That's what I
18 understood.

19 All right. 1191-A is the video, 1191-B is
20 the transcript, and 1191-B is hereby admitted.

21 Anything else?

22 MS. HILL: Yes. I have one more and I
23 don't know that this one will be as easy.

24 On November 18th, '09, in the
25 cross-examination of Dr. Olsen, we played an excerpt

1 of a training video. This is Volume 48, page 5523,
2 and that discussion begins at line 15.

3 "The state has made a training video for
4 farmers and ranchers that touches on riparian area
5 management. And I'd like to play a little segment of
6 this for you and have you watch it."

7 The discussion goes on, and on page 5524,
8 line 9, the video clip was played. To be candid,
9 there is not an exhibit number on the video clip.
10 There was not a demonstrative to the video clip. But
11 Dr. Olsen was confronted with a video clip that has
12 words, and we would like those words that were not
13 transcribed on the record to become part of the
14 record.

15 We propose that those be made a court exhibit
16 in and of themselves, a transcription of this short
17 video clip that was shown to Dr. Olsen on November
18 18th, 2009. And I do believe that the state has an
19 objection to that transcription.

20 THE COURT: All right. Before we go to
21 the objection, let me go to the transcript so I will
22 know what we're talking about. This is such a large
23 docket sheet, as you know, it takes awhile to load.

24 *(Discussion held off the record)*

25 THE COURT: All right. Does anyone have

1 the actual docket number for this particular
2 transcript for my notes? I understand it's on the
3 screen. Does anyone have the docket number?

4 All right. 2762, it looks like. All right.
5 That's page 5523, line 15.

6 Now, this is not the Gunter training video?
7 Is the reference on line 15 not the Gunter training
8 video?

9 MS. HILL: This is not the same as what
10 we just previously admitted.

11 MR. TODD: I can tell what it was.

12 THE COURT: Well, let me see if the
13 record is reflective.

14 All right. So it goes to cattle and cattle
15 mineral feeders and the removal of foliage in riparian
16 areas and erosion potentially causing nutrient
17 pollution in surface waters?

18 MS. HILL: That is correct. And for
19 further clarity of the record, it is the ODAFF
20 training video.

21 The exhibit we just discussed, 1191-A and B,
22 that was the Teena Gunter portion of that larger
23 video. This is a separate portion of the ODAFF
24 training video.

25 THE COURT: All right. Objection?

1 Mr. Nance.

2 MR. NANCE: Yes, Your Honor. The actual
3 video that was used with Dr. Olsen was not admitted.
4 In the record, the court already has the benefit of
5 questions directed to Dr. Olsen about what was on the
6 video.

7 Since the video itself was not admitted, we
8 see no reason to admit the text of what was said on
9 the video. You've got everything the defendants
10 thought they needed at the time from Dr. Olsen
11 himself. We just object to the admission of this text
12 as a court exhibit.

13 THE COURT: The objection's sustained.
14 There is an admission by the doctor in response to
15 Mr. Green's question that the video reflected his
16 client, the State of Oklahoma, telling farmers and
17 ranchers that cattle and cattle mineral feeders and
18 removal of foliage in riparian areas and erosion can
19 cause nutrient pollution in surface waters. It wasn't
20 timely offered. The objection's sustained.

21 Anything else?

22 MS. HILL: Nothing further. Thank you,
23 Your Honor.

24 MR. NANCE: I think Mr. Jorgensen has
25 something, Your Honor.

1 MR. JORGENSEN: Your Honor --

2 THE COURT: And you all are willing to
3 give him this honor?

4 MR. HOPSON: He hasn't done anything
5 else.

6 MR. JORGENSEN: Your Honor, before I do,
7 it's my understanding of Rule 52 in jury trials, Your
8 Honor, I'd like to -- this is being extraordinary
9 hard, extraordinary hard.

10 Your Honor, it's my understanding of Rule 52
11 that after we rest the defendants can again move for
12 judgment as a matter of law and the court can take
13 that under consideration. I just want to make sure
14 that's the court's understanding as well.

15 THE COURT: No. Well, let me take a
16 look then at the specifics. It was my understanding
17 that you can move again after rebuttal.

18 MR. JORGENSEN: That's correct, Your
19 Honor. And that's my understanding as well. I'm
20 sorry I was not clear.

21 THE COURT: You said after you rest.

22 MR. JORGENSEN: I'm sorry. I mean,
23 after the case is over.

24 THE COURT: Okay.

25 MR. JORGENSEN: With that, Your Honor,

1 I'm very pleased to say that the Tyson defendants
2 rest.

3 THE COURT: Very well.

4 MR. SANDERS: Your Honor, Cal-Maine
5 Foods, Inc. rests also.

6 MR. MCDANIEL: Peterson Farms rests,
7 Your Honor.

8 MR. ELROD: Simmons Foods rest, Your
9 Honor.

10 MR. WEEKS: And George's rests as well,
11 Your Honor.

12 MR. TUCKER: Your Honor, no more
13 Honeysuckle White for you. Cargill rests.

14 THE COURT: Does that cover all the
15 defendants?

16 THE COURT: Mr. George.

17 MR. GEORGE: Sorry. I felt left out,
18 Your Honor.

19 THE COURT: Cobb-Vantress.

20 MR. GEORGE: Yeah. I guess it probably
21 was covered, but Cobb-Vantress as a matter of
22 formality does rest.

23 Your Honor, I appreciate that we're all going
24 to do some preparation for tomorrow to try to be as
25 efficient with the court's time in working through the

1 rebuttal issues.

2 Mr. Bullock, I believe, provided the court
3 with a few references to pleadings or dockets that
4 might be useful to the extent the court has any
5 appetite to look at any further on this before
6 tomorrow. And I have a few I'd like it add to that,
7 if I may.

8 THE COURT: All right. Let me find my
9 place in the notes so that I can put them all
10 together.

11 MR. GEORGE: Your Honor, I'm impressed
12 at the number of pages I saw you flip from one day as
13 you were going through --

14 THE COURT: It remains to be seen how
15 useful it is. Go ahead, Mr. George.

16 MR. GEORGE: It's admirable.

17 Your Honor, there has been a motion served by
18 the state to serve expert rebuttal reports, not with
19 respect to any of the witnesses that are at issue, but
20 the briefing and the court's ruling on that might be
21 relevant.

22 The state's motion was docket No. 1819, the
23 defendants' opposition can be found at 1824, the
24 state's reply at 1836, and then Your Honor's order at
25 1842.

1 There was also some briefing with regard
2 to -- some dispute as to whether they were rebuttal or
3 supplemental reports. But with regard to Cooke and
4 Welch, they can be found, the state's motion, at 1826,
5 the opposition at 1828, the reply at 1833, and Your
6 Honor's order at 1839.

7 And then finally --

8 THE COURT: Now, is that going to be
9 pertinent to the subject matter tomorrow? We're
10 talking about Engel, Stevenson, and Wells.

11 MR. GEORGE: I believe it will only
12 insofar as Your Honor provided a very well-recognized
13 definition of rebuttal and what it constitutes and
14 does not constitute in the order. I simply provided
15 the citations to the briefs as being relevant to that
16 order.

17 THE COURT: Well, it remains to be seen
18 if that's correct, but that's certainly the
19 understanding that I've always had.

20 MR. GEORGE: Okay. And then lastly,
21 Your Honor, there was a motion for clarification filed
22 by the defendants with respect to those two previous
23 orders, and since I've cited them to you I want to
24 cite the motions.

25 The motion by the defendants can be found at

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1 docket 1839, the -- and 1840 -- I'm sorry. I botched
2 that, Your Honor. The motion can be found at docket
3 1972, the opposition by the state at docket 1985, and
4 then Your Honor's order at 1989. You did issue a
5 clarification with respect to those two orders so I
6 bring that to the court's attention as well.

7 THE COURT: All right. And so the two
8 references by Mr. Bullock were to the court's two
9 orders?

10 MR. GEORGE: I believe that's right,
11 Your Honor.

12 THE COURT: All right. Mr. Bullock or
13 Ms. Moll, has the plaintiff been able to find any
14 other references that I can get started with? Because
15 this promises to require a little bit of homework.

16 MR. BULLOCK: I know that they were
17 talking about some and working on getting them pared
18 down but I don't have them. Perhaps we could -- we'll
19 try to supplement those this evening, though, if it
20 will help the court in the morning and the
21 defendants.

22 THE COURT: Well, in the meantime, I'm
23 trying to work on these 52(c) motions. It's difficult
24 to work on them while you're here in court.

25 But in any event, we will be adjourned until

1 nine o'clock tomorrow morning.

2 MR. BULLOCK: Okay. Thank you.

3 *(The proceedings were recessed)*

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C E R T I F I C A T E

I, Brian P. Neil, a Certified Court Reporter for the Eastern District of Oklahoma, do hereby certify that the foregoing is a true and accurate transcription of my stenographic notes and is a true record of the proceedings held in above-captioned case.

I further certify that I am not employed by or related to any party to this action by blood or marriage and that I am in no way interested in the outcome of this matter.

In witness whereof, I have hereunto set my hand this 13th day of January 2010.

s/ Brian P. Neil

Brian P. Neil, CSR-RPR, CRR, RMR
United States Court Reporter